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THE FARM INDEX

U.S. Department of Agriculture/May 1971

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Outlook

In many areas, corn producers will sometimes opt for soybeans when weather and other factors don't pre-empt good profits from corn. This year, added incentives to plant soybeans are provided by attractive prices—a fifth higher than last season's—and uncertainty about a possible recurrence of the Southern cornleaf blight.

"Some shift to soybeans seems probable," according to the April issue of the ERS Fats and Oils Situation. Between now and planting time, farmers' decisions on soybean acreage will be based on weather conditions, the soybean price versus corn's, and on the supply of blight-tolerant seed corn.

But even with a record soybean crop, as now seems likely, soybeans will be in a relatively tight supply position in 1971/72. From the March 1 planting intentions and taking into account the would-be yields if they keep to recent trends—the carryover next September 1 is estimated at only about 75 million bushels . . . and the total 1971/72 soybean supply at around 1.3 billion bushels. Due to dwindling supplies plus good demand, farm prices averaged, \$2.81 per bushel in September '70-February '71, or 50 cents above the 1969/70 period.

A sharp jump in imports of certain cheeses has prompted an investigation to determine whether these imports are interfering—or likely to interfere—with the milk price support program. The cheeses in question are Swiss or Emmenthaler, Gruyere-process, and "other" cheese having a purchase price of 47 cents per pound or more.

Beef output in July-December is expected to be up from the 1970 period. For the summer and fall, fed cattle marketings are projected "moderately larger," and summer prices, near the \$30/cwt. of July-September 1970.

The longer-range outlook, to 1980, calls for a slower advances in beef production relative to the rate of increase during the fifties and the sixties. Back then, more and more cattle were being fed to maturity rather than slaughtered as calves. By 1970, fed cattle marketings accounted for a fairly high proportion of total slaughter. So, most of the gains in beef output from

now on will have to come from increases in the beef calf crop.

U.S. wool prices in the second half of '71 will probably climb higher because of: slightly less wool production as indicated by this year's 3-percent decline in beginning-stock sheep numbers; recovery in wool demand from last year's postwar low; and the expectation of some rise in prices being paid for imported wools. Prices to wool producers in 1970 averaged 6.3 cents below the 41.8 cents a pound (grease basis) received in '69.

The hog situation will soon come full circle, judging by the Hogs and Pigs Report of March 22. Farrowing intentions for the 10 Corn Belt States, which account for about three-fourths of U.S. output, were as follows: December 1970-February 1971, up 6 percent from a year earlier; March-May, down 7 percent; and June-August down 15 percent.

Assuming producers carry out their intentions, by the end of the year the hog slaughter would drop below the 1970 levels.

The outlook for prices as of early April—the summer peak to come later than last year and prices will be sev-

eral dollars lower. . . . Fall prices to decline seasonally but the drop will be much less than in the fall of '70. . . . Final quarter prices to stay moderately above a year-earlier.

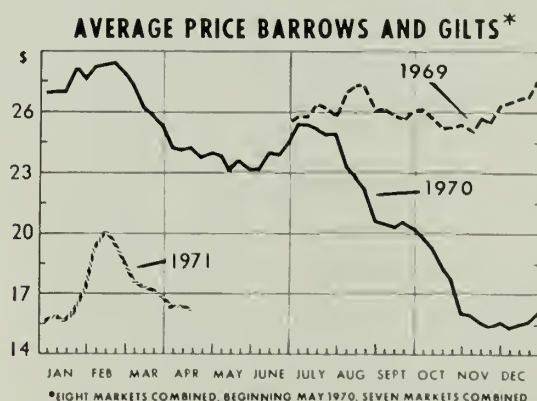
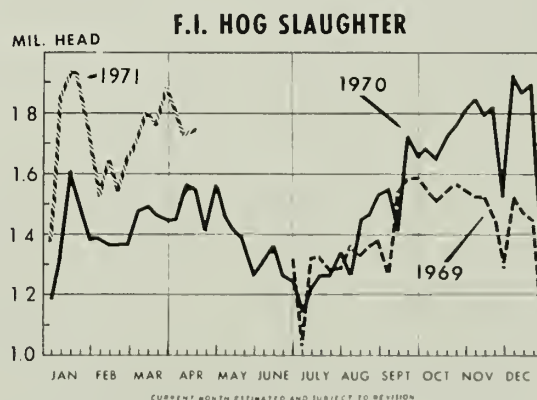
This promises to be **another year of generous production of white potatoes**, based on planting intentions for the late summer and fall States. With an average yield—and allowing for the long-term uptrend in yields—the crop could turn out to be only slightly below the record outturn of '70. The marketing season for that crop is now entering the wind-up stage. Grower prices have been disappointingly low throughout most of the season.

Intended plantings of sweetpotatoes are smallest of record, and 14 percent under the '70 acreage. This probably reflects a declining demand together with relatively heavy labor requirements for this crop. Per person use of fresh sweetpotatoes stands at 4 pounds per person, down from 6 pounds in 1960. Canned sweetpotatoes consumption rose from 1 pound in 1960 to 1½ pounds in 1970. Twenty years ago, usage of fresh and canned types totaled more than 12 pounds per person.

Cigarette output in '70 was a record-breaking 583 billion, but this year a slight decline is likely. Reason is the expectation of reduced inventories, following a build-up in stocks in the second half of '71.

Despite the anti-cigarette publicity, U.S. smokers—including those overseas—used 3 percent more cigarettes than in 1969. Consumption per person (18 years and older) was 4,000 or 200 packs of 20, about the same as in 1969. This was below the peak consumption of 1963. With cigarette advertising at a lower level this year, total use is expected to hold steady.

The first round of reports on the 1969 Census of Agriculture is now off the press. Initial reports are on New Jersey, Wisconsin, Minnesota, and Iowa. Next in line are Ohio, Indiana, Illinois, and Michigan. To get the census publications, contact your local field of the Department of Commerce, or write the Publications Distribution



Contents

Section, Bureau of Census, Wash. D.C. 20233.

Foreign Spotlight: Focus on U.S. Agricultural Exports. Continuing their record pace, exports during July-February 1970/71 totaled \$5.2 billion—up 17 percent from the same period of a year earlier. Gains in values of wheat and soybeans and soybean products accounted for two-thirds of the overall increase. Wheat was up nearly two-fifths, and soybeans and their products, a third. Other gainers: Dairy products, feed grains, and cotton. Only tobacco, meat, rice, and flaxseed fell from 1969/70 levels.

USSR. Soviet production of grain and cotton in 1970 topped all records by a wide margin. Meat output was also a new high. The exact size of the grain harvest has not been announced. Based on calculations, it was 185 million tons, up 8 percent from the previous high reached in 1966. Near-record Government purchases of grain—17 million tons more than in '69—provide for an ample exportable surplus this year.

Australia. The Australian Wheat Board has announced a big sale of wheat to the United Arab Republic. The amount is 18.4 million bushels (500,000 metric tons). It's a credit deal, with payments due in 3 years. Normally, Australia extends 1-year credits on wheat sales. The more liberal terms for the UAR reflect in part the sharpening competition among world wheat exporters. The recent sale brings total Australian wheat deliveries to the UAR to 1.2 million tons, which represents about half the UAR's wheat requirements for 1970/71.

Canada. Cattlemen continued rebuilding their herds in 1970 following a drawdown in inventories from 1966 to 1968. The supply of slaughter cattle got so low in 1970/71 that Canada—usually an exporter of feeder cattle to this country—had to import from the U.S. some 100,000 head for slaughter. Hog numbers, by contrast, were nearly a record high moving into 1971. Hog slaughter is expected to peak in the first 6 months of '71. Declines in the the second half are indicated by a smaller spring pig crop.

FARM

RURAL

CONSUMER

FOREIGN

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A farm operator's income — whether or not it's all from farming — was found to be a telling factor in explaining the longevity of small units in the Corn Belt.

If all the corn grown in the Corn Belt were to be produced on holdings of 500 acres or more, there would be about half as many farmers in the Midwest as there are today.

Family-size farms produce an estimated 92 to 95 percent of today's total U.S. corn crop.

In the major Corn Belt States (Ohio, Illinois, Indiana, Iowa, and Missouri), these farms are typically about 500 acres or smaller. The viability of these operations is being severely tested.

Many small Midwest farms, however, have deep roots and strong staying power. It is unlikely—in the next couple of decades at least—that they will completely give way to “large” farms (those with over 1,000 acres).

Federal income tax returns for 1966 show that 692,000 individuals in the Corn Belt States had profits or losses from farming. These family-size farm operators and farmland owners can be categorized into four major groups:

About 60,000 individuals (less than 10 percent) are classified as

full-time farmers.

Over 200,000 (around 30 percent) either farm part-time or derive part of their income from nonfarm sources.

About 400,000 (over 50 percent) fall into a low-income or minimum-growth classification.

Landowners not operating farms constitute an important group of farm income taxpayers in the Corn Belt. They can often be classified in the upper-middle and high-income brackets, though some retired farm operators with income only from their landholdings would fall in a lower-middle or low-income group.

The four categories are not mutually exclusive. Over time, a farm operator may be in more than one of them. Exact data on number of “farmers” who fall into each category have not been collected.

Which group has the greatest staying power? An ERS study says it's the full-timers and part-timers with either a high farm income or a high off-farm income.

The full-timers generally manage units of sufficient size to provide the family with full employment and an acceptable level of income. Moreover, the net farm income is great enough to enable investment in farm expansion.

Operators in this full-time class

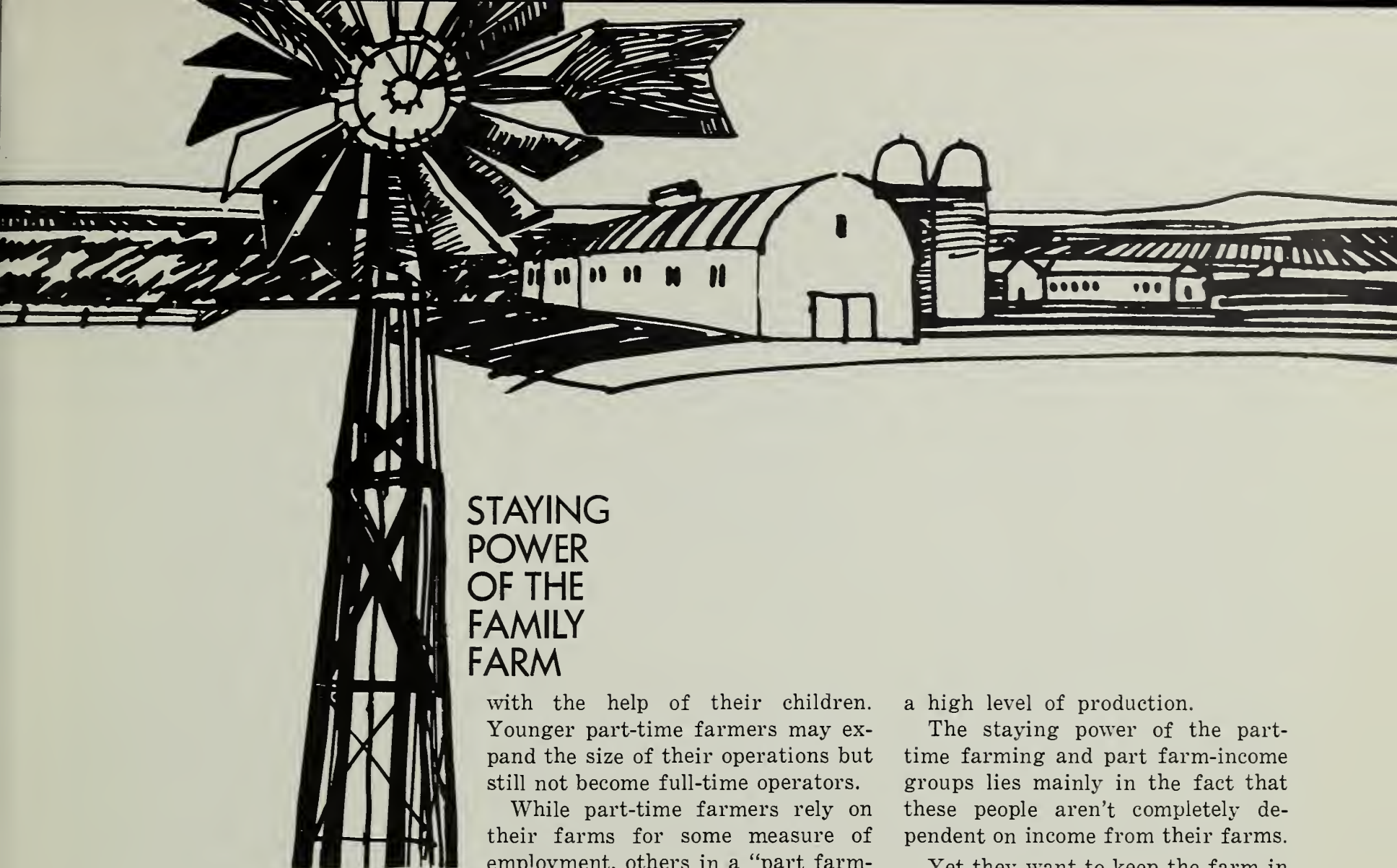
manage assets with a current value of \$200,000 or more. Typical farming units have at least 300 acres of corn (or corn and soybeans) plus an intensive livestock program. On row crop units of 500 acres and above, livestock may or may not be important.

Most operators of such a commercial family-size operation are between 30 and 55 years old. Older operators in this group generally involve one or more of their children in the enterprise or operate in partnership with another farmer. Nonfarm investments are often a part of the family's total financial resources.

For reasonably efficient family-size units that are relatively free of debt, a net cash income or cash withdrawal of \$35 to \$45 per acre is possible.

A 500-acre cash grain farm can therefore provide \$15,000 to \$20,000 in net cash income yearly for family living and other purposes. When an extensive livestock program is combined with grain production, similar per acre amounts may be available from a smaller acreage.

Before reaching retirement age, many such farmers will eventually control units of 1,000 to 2,000 acres. And with their know-how, they can provide strong competition with out-



STAYING POWER OF THE FAMILY FARM

side investors who may attempt to form units of 4,000 to 5,000 acres.

To do this, they will need suppliers who will sell them seed, fertilizer, fuel and other supplies at prices as low as those paid by large units. They will have to seek out the most advantageous marketing channels, which may be through contract production or direct sales to processors. And farmers will need access to adequate credit on good terms.

After the full-timers, the part-time farmers would seem to have the most staying power. Part-time farm operators have been increasing in number, especially near cities in the eastern Corn Belt. Their row crop enterprises generally range from 100 to 500 acres or more.

Many part-time operators at one time had planned to become full-time farmers. But having acquired various academic or technical skills, they now find they can make more money from off-farm jobs. So they usually get hired labor to handle part of their crop enterprise and do the rest of the work themselves, perhaps

with the help of their children. Younger part-time farmers may expand the size of their operations but still not become full-time operators.

While part-time farmers rely on their farms for some measure of employment, others in a "part farm-income class" are less directly involved in any farming labor themselves. But they do get part of their income—often a sizable part—through control or ownership of farmland.

There appear to be about as many commercial farms with sales of over \$20,000 that are owned by individuals in the "part farm-income" class as by farmers who rely mainly on farm income.

Among the part farm-income group are the *individuals who own but do not operate farms*. They include retired farmers, farmers' widows and farmers' heirs. Often they are professional workers who also own farm real estate that they rent to operators.

In some cases, the operator may view his farm ownership and operation as a joint venture with an off-farm job or business. He may work full time off the farm, and operate the farm using hired labor. Certain farm losses may be deducted from other income for tax purposes, even though the farm is operated at

a high level of production.

The staying power of the part-time farming and part farm-income groups lies mainly in the fact that these people aren't completely dependent on income from their farms.

Yet they want to keep the farm in business for one or more of these reasons: personal satisfaction they get from "running" it; supplementary income they get from owning it; close personal ties between owners and renter-operators; and prospects for a rise in farm real estate values.

As for the *low income group*, a relatively large proportion of these farmers may quit farming in the next 2 decades. The operators are usually over 45 years old. Many are near retirement age. They generally lack sufficient incomes, assets, skills, or motivation to increase the size of their operations. Recent studies at Midwest universities have estimated that the gross income of farms in the low-income class is \$35 per acre less than the income of the family farms that possess the most staying power.

Some of the younger operators might one day become owners of viable units. Most in this category, however, will either assume off-farm employment to supplement their farm income, or they will abandon farming altogether. (1)

Fertilizer Prices On the Rebound

Not so very long ago prices for fertilizers provided a rare exception to the rule that farmers' production costs are heading no where but up. But beginning with the spring of 1970—after more than 10 years of steady decline—fertilizer prices made an about-face.

Steeper prices are in view this year—by current estimates, perhaps 10-12 percent above late '69/early '70 averages.

Whether this signals the start of a trend will hinge mainly on the outcome of the fertilizer industry's bout with escalating costs.

One big worry is freight charges, contributing a substantial part of total cost package of producing fertilizers. Rail rates were raised on four occasions over the past 2 years, most recently in the fall of '70. Labor costs and prices paid for raw materials have also been trending uphill.

Manufacturers' costs to produce synthetic ammonia—main ingredient in nearly all nitrogenous fertilizers—are expected to go up. For example, natural gas accounts for three-fifths of the cost to produce a ton of ammonia. By one estimate, gas prices may increase 30 percent by 1975. If the entire increase were to be passed on to gas users, this would

raise the price of nitrogenous fertilizers by varying percentages. However, manufacturers will probably absorb some of the higher cost, so the net increase might come to 10 to 12 percent this year.

The farm price for phosphatic fertilizers is rising. This, despite softness in the world market for phosphate rock and extremely low sulfur prices. Domestic sulfuric acid prices are relatively firm because of probable added costs of pollution control. One major producer of sulfuric acid reports that pollution control costs an additional \$2 per ton—or the equivalent of a 7-percent increase over the \$27-per-ton price of acid quoted in late 1970.

Potash prices have stabilized, along with output. Although a 5-percent increase can be expected at the height of the spring shipping season, this encourages fertilizer mixers and wholesalers to take delivery before the heavy-use period so as to assure adequate supplies for farmers during planting.

About the effect of the corn leaf blight on the demand for fertilizers: Farmers who can get blight resistant seed this spring will fertilize heavily. On the other hand, those unable to get any resistant seed may use no more fertilizer than they did last year. Also, some farmers might opt for soybeans or sorghum instead

of corn. Typically, the rate of fertilizer application with soybeans is less than with corn. But, sorghum is fertilized much like corn.

A relatively encouraging part of the outlook for farmers is that fertilizer prices frequently erode as the planting season progresses. If this happens in 1971, the price advance may be held to 10 percent or a shade under.

Even with a 10-percent increase, fertilizer would still be a good buy relative to the prices paid by farmers 5 or 10 years ago. In the early sixties, anhydrous ammonia, for example, sold for twice what it does today.

Back then also, the fertilizer industry began to use new cost-saving technologies. As profit margins became increasingly favorable, more firms went into fertilizer production. Added incentive was provided by the anticipation of a surge in export sales.

When the bigger exports didn't materialize, producers dropped their prices to compete in the oversupplied domestic market. Many of the smaller plants were closed. Competition eased up, and prices finally bottomed-out in 1969. (3)

Agriculture No Gravy Train

Though the net income per farm went up four-fifths in the 1960-69 period, farmers still have a ways to go to catch up with income levels in the nonfarm sector. In 1969, the per capita after-tax income of the farm population was 77 percent of the income of nonfarm people. The ratio reached 78 percent in 1970.

Much of this improvement relates not so much to gains in income from farming per se, rather, to gains in farm operators' income derived off the farm. In 1970, the per capita income payments to farm people from farming totaled more than 2¼ times the 1947-49 average. Meantime, income payments from non-farm sources increased more than five fold. (2)

AVERAGE PRICES PAID BY FARMERS FOR SELECTED FERTILIZERS

Period	Superphosphate					
	Anhydrous ammonia	46 percent P ₂ O ₅	20 percent P ₂ O ₅	Ammonium phosphate 16-20-0	Potash 60 percent K ₂ O	Mixed fertilizer 6-24-24
<i>Dollars per ton</i>						
Average						
1957-59	149.00	82.20	37.00	89.60	¹ 56.80	91.10
1966	119.00	80.90	41.40	81.10	¹ 59.90	85.10
1967	113.00	84.10	42.10	80.70	¹ 58.50	85.70
1968	91.40	78.40	43.20	78.40	49.10	81.80
1969	75.60	74.00	43.80	77.70	47.80	73.20
1970:						
Apr. 15 . .	75.00	75.10	45.40	76.90	50.90	75.00
Sept. 15 .	76.80	76.20	46.90	76.50	54.00	76.70

¹ Based on equivalent price for 55 percent K₂O reported by SRS.
Source: Agricultural Prices, Pr 1 (9-70), Statistical Reporting Service, USDA, September 30, 1970, and earlier issues.



Environmental quality is not priced like a loaf of bread. You can't buy 30 cents worth. It nevertheless bears a price tag—a two-sided one.

One side shows the damages caused by pollution and the adverse effects on society. The other side reveals the cost of correcting and preventing the unfavorable alteration of our surroundings.

Assuming the decision has been made to improve the quality of the environment, one question in particular wells to the surface. It is "Who pays for what?" Somebody has to put up the hard cash to buy a cleaner environment.

To the thinking of some people, industry or anyone else who pollutes should pay for pollution abatement. Others claim the government must assume the financial responsibility. Still others say those who benefit must pay.

Debate centers around not only *who* pays, but *how much*? In some cases, a rough idea of potential costs can be gotten from estimates of pollution's damages.

For example, damages from air pollution add an estimated \$800 million a year to the tab for commercial laundering, cleaning, and dyeing of fabrics . . . \$100 million a year to the costs of painting steel structures . . . and \$40 to \$80 million annually to costs of air travel when planes must

be rerouted due to poor visibility.

By one estimate, air pollution's damage to crops and livestock comes to around \$500 million a year.

But the price tag on *agriculture's* pollution of the environment is often a blur.

Nearly everyone would agree that foul odors emanating from feedlots are aesthetically insulting. Moreover, airborne ammonia volatilized from cattle urine can pollute water bodies located miles downwind from a feedlot. Absorption of airborne ammonia by surface waters can cause excessive enrichment of lakes and rivers, which in turn causes eutrophication.

But the same airborne ammonia also enriches range lands and fosters lush vegetative growth. It can increase production, reduce erosion and benefit both domestic and wildlife habitats.

In other instances, there can be no doubt about the adverse and costly effects of agricultural pollution. In Maryland, for example, 800 acres of oyster and clam beds had to be closed down because of bacterial contamination. The source was traced to a runoff from a large cattle feedlot. The cost to Maryland's eastern shore economy, which depends heavily on the fishing industry, was estimated at a half million dollars by that State's Health Department.

By and large it is difficult to pin-

point the cause of pollution when the pollutants enter the ecosystems from many sources. The costs of abatement are equally difficult to add up or to allocate among the offenders.

Mercury, to illustrate, escapes from oil wells, sulfur mines, coal mines, mineral smelters, burning fuels and enters the atmosphere. Rain and snow filter the air of pollutants, returning them to the rivers, lakes, oceans and to the land. Mercury has been used as fungicides and in paper making. Dentists use it for teeth filling.

The price tag is largely nonexistent when we speak of mercury pollution. We know little about mercury, aside from the fact that a concentration in body tissue can be deadly.

Agriculture is often blamed for nitrogen pollution. Yet nitrogen makes up 78 percent of the atmosphere and is present in all living tissue. Burning of fossil fuels, life processes, and the decay of organic material release concentrated forms of nitrogen into the ecosystem. The price tag for nitrogen pollution control also is being vigorously debated.

Of all of agriculture's problems with pollution, the one that appears the most costly to overcome is disposal of solid wastes. These account for over half the solid wastes produced in the United States. True,

not all the 2.3 billion tons of agricultural wastes can be considered pollutants. And frequently the wastes can be disposed of at little or no cost, such as those from range cattle and certain crops. However, costs to dispose of wastes from intensive livestock operations can be high, depending on the location of these operations and other factors.

The annual 2.3 billion tons of agricultural wastes far exceed the 250 million tons contributed by residences, commerce, and institutions. Of the 250 million, about 190 million are collected by public agencies and private refuse firms. The disposal cost runs about \$18 per ton—or \$3.5 billion a year.

All things considered, it is clear that the total cost of getting rid of all types of agricultural pollution will run well into the billions.

Not all decisions on environmental quality will be based on economics, however. DDT was first used to protect humans from insects. It saved many lives and eliminated many diseases. Later, it became a major input in producing food and fiber. More recently, it was recognized as having an adverse effect on other parts of the ecosystem and bans were imposed. Monetary values on the saving of lives, or the reduction of illness, have not been established. Neither can such values be placed on the adverse effects—the loss of wildlife and contamination of the food chain. But this example does not suggest we obviate the need for measurement.

Instead, the lessons learned from DDT should encourage a broader sense of economic and social responsibility; an increased awareness of the short-run and long-run implications of our actions; an attempt to determine if such actions and technology are in harmony with biological, social, and economic objectives.

Costs of controlling agricultural pollution are large and will vary widely depending on assumptions as to what is considered necessary, desirable and possible. As understanding of methods and techniques of

If 2,4,5-T Were Banned

A just-published study estimates that a ban on the phenoxy herbicide 2,4,5-T would increase costs to farmers and other users by \$52 million to \$172 million.

The lower figure would be the case if 2,4,5-T were banned and all other registered herbicides were available as alternatives. Of the \$52 million, \$32 million would represent added costs to control weeds and brush on farms. Other domestic users—homeowners, utility companies, recreation and timber industries—would spend \$20 million more.

The \$172 million assumes no phenoxy herbicides could be substituted for 2,4,5-T. Added expense to farmers is estimated at \$44 million, and to nonfarm users, \$128 million.

All costs are based on estimated use, prices, and alternatives in 1969.

This ERS study notes that of the phenoxy herbicides, 2,4,5-T provides the most effective control of many species of brush, other woody plants, and herbaceous broadleaf weeds. However, consideration was given to prohibiting the use of 2,4,5-T in late 1969 as a result of reports this chemical may be a possible health and environmental hazard.

In April 1970, the registration of 2,4,5-T was suspended for all uses on lakes, ponds, or ditchbanks. Also, liquid formulations were suspended for use around the home, recreation areas, and similar sites. (6)

environmental quality control improve, these costs can be incorporated into economic analysis and improve the decision-making processes.

Obviously, without pollution abatement, society in general will suffer the damages or social costs. These costs range from aesthetic insults to debility and death. They include financial losses, inconveniences and fear of the future.

Some of the pollutants can be reduced at the source, with industry bearing the added costs. Other pollution problems, such as municipal wastes, must be controlled by governments. Additional costs may be

covered by government grants, subsidies, or other incentives.

The question of "Who pays for what?" would seem to depend on how clean we want the environment and how much society is willing to pay. It depends on what adverse effects society is willing to accept if steps are not taken to curb pollution. It depends on technological ability to reduce pollution and prevent new forms of pollution.

Finally, it depends on the legal-political and institutional structure: how these facilitate achievement of what is physically possible and of what is economically feasible.

[*This is the third in a series of articles on the environment. The next will deal with legislative action*]. (5)

Labor Investment Larger On Farm Than Factory

Up till 1969, comparison of investment per worker in agriculture and manufacturing was difficult because the assets of the two industries were measured differently.

Agricultural data for the comparison are generally taken from the Balance Sheet of the Farming Sector. This source, prior to 1969, estimated production assets only on a *current* basis; the number of physical units (such as acreage, buildings, and equipment) multiplied by the current market value per unit.

But in manufacturing enterprises, assets are generally based on *cost*, less depreciation and other allowances. Data are supplied by the Quarterly Report on Manufacturing Firms.

Further difficulties in the comparison have arisen from different interpretations of a "production worker." In manufacturing, there's a sharp distinction between labor and management. Production workers refer to laborers only, not to total manufacturing employment.

On the farm, however, management and labor are often combined in the same individual. Employment figures from the Balance Sheet refer to all farm workers.

Based on the industries' usual measures of production workers and assets, it appears agriculture's cost per worker is one and a half times greater than manufacturing's: \$50,000 per farm hand and \$35,000 per production worker.

By making two adjustments, however, a more valid comparison can be made. The first change appeared in the 1969 Balance Sheet of the Farming Sector. Agricultural assets were estimated on a cost basis, as in manufacturing.

The second adjustment is the inclusion of management in manufacturing employment numbers.

On a cost basis, the average investment per farm worker is around \$28,000, versus about \$26,000 for each manufacturing employee.

Agriculture's investment still appears greater, but only by about 10 percent—not the margin indicated in earlier estimates. (15)

Farm Work Force Shrinks 3rd Straight Year

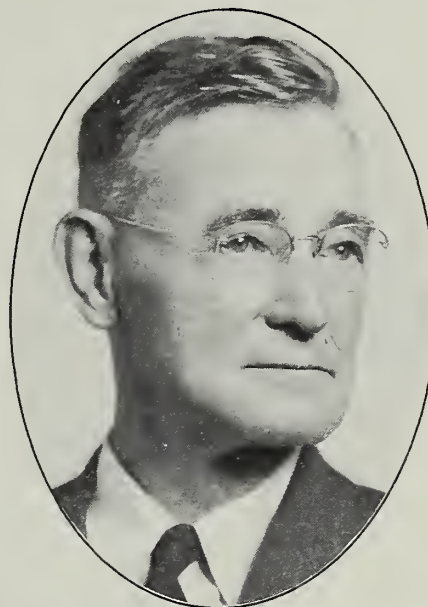
The number of hired farm workers in 1970 declined for the third consecutive year. About 2.5 million persons worked on farms for salaries or cash wages at some time during 1970—4 percent fewer than in 1969. The drop in work force numbers reflects increased mechanization, and other labor-saving technology.

Most of the workers (76 percent) were men, and most (78 percent) were white. And many of last year's hired farm workers were young—their median age, 23 years.

Close to three-fourths of all hired farm workers in 1970 didn't reside on farms, although some lived on farms part of the year.

Farm wagework was the main occupation for around 550,000 workers. But only a little over 300,000 were year-round farm employees who averaged over 300 days of work.

Over half (1.4 million) the workers weren't in the farm labor force most of the year. This group consisted mainly of students (about 1 million) and housewives. (8)



Men and Milestones

WASHINGTON, D.C., 1922—*Department of Agriculture employees are becoming increasingly concerned over the prospect of declining farm prices. Members of the newly formed BAE (Bureau of Agricultural Economics) are preparing their first report on farmers' intentions to plant certain crops during the coming year. They hit upon the idea of calling in outside experts to interpret the data and tell what it means for future prices. Dr. O. C. Stine, an economist with the Bureau, is assigned to provide detailed statistics for the forthcoming meeting. His work becomes the basis of the first Agricultural Outlook Conference in April 1923.*

* * *

As an economist and statistician, Oscar Clemen Stine was one of the men who made the 1920's a turning point for the Department of Agriculture.

Besides his crucial role in the first Outlook Conference, he started the commodity situation reports; he was instrumental in developing the concept of parity;

he founded *Agricultural History*, the chief journal for writings on the history of agriculture.

Born near Sandyville, West Virginia in 1884, O. C. Stine received his Ph.D. from the University of Wisconsin in 1921, and joined the BAE.

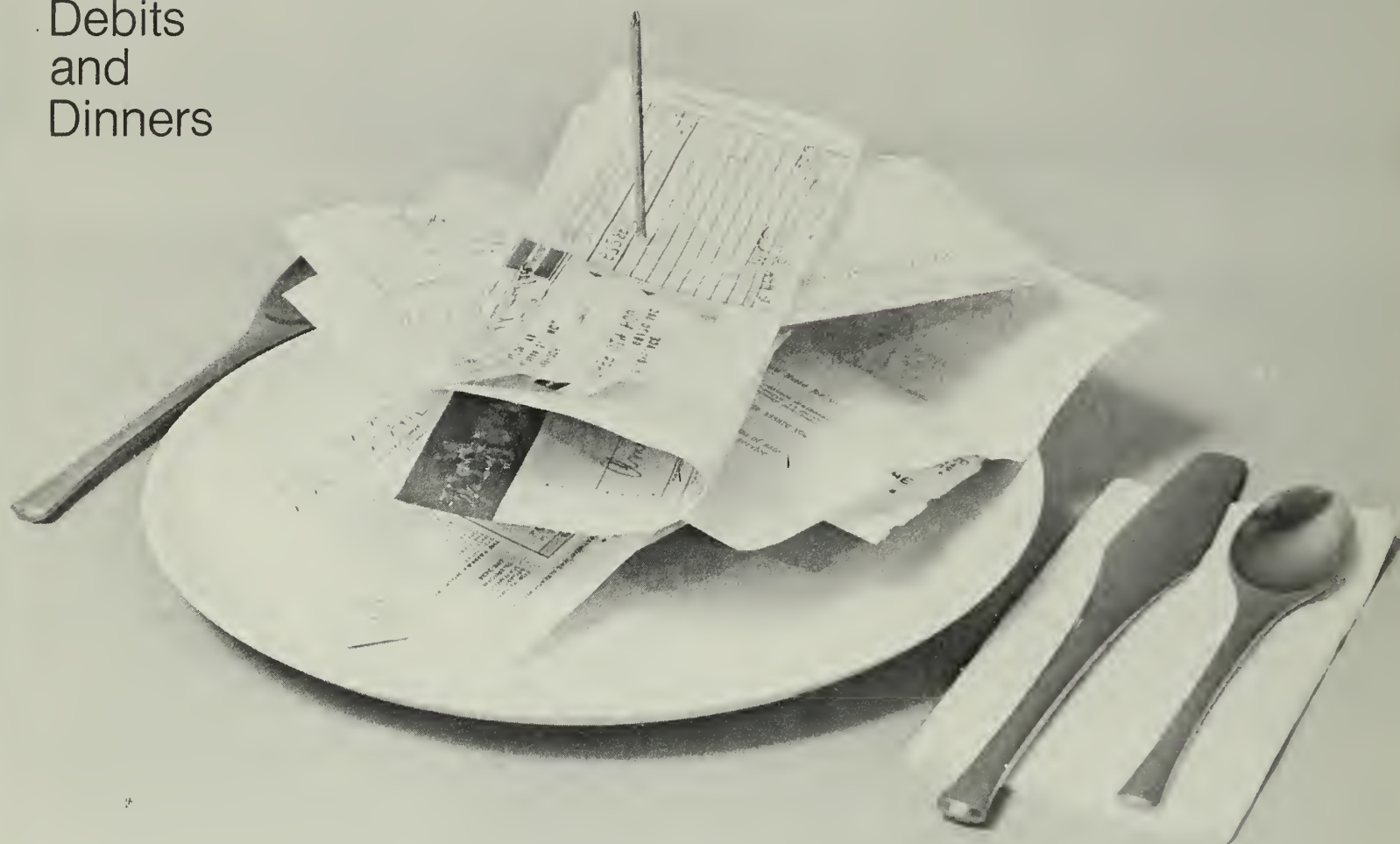
Stine found that the clerks under him had no training or experience with statistical analysis. So he recruited two statisticians from the University of Minnesota to train his clerks.

This experience gave Stine the idea of starting a Graduate School within the Department where senior personnel could teach other employees. Stine himself taught a course in price analysis the first year the Graduate School opened.

The School has grown from 800 students in 1921 to 22,000 students today. It has trained many staff members in the Department.

Retired from the Department since 1951, Stine lives with his wife on his West Virginia farm. He has remained active in education, history, and agriculture. (7)

Debits and Dinners



Families in debt may be forced to cut back on certain living expenses when payments fall due. A survey in Oklahoma says the food budget may feel the pinch.

Only \$100 a month for 3 more years, and the Brown's family car will be paid for.

Meanwhile, they may have to scrimp a bit somewhere. And, chances are, they'll pare down their spending for food by about \$250 in order to meet the car payments.

To find out how much impact consumer credit has on the family food budget, USDA economists—in cooperation with the College of Home Economics, Oklahoma State University—surveyed 343 families in Enid, Oklahoma, population about 45,000.

The sample for this survey, the first of its kind, was limited to families who tend to be the heaviest

users of credit: those in which there are a husband and wife, the husband being under 45 years old.

One-fifth of the 343 families were not paying consumer debts in the survey year of July 1968/June 1969. About 44 percent of all families in the sample allocated at least a tenth of their after-tax incomes—averaging about \$6,850—to paying off debts. Over one-fourth of the families paid out over \$1,000 in the year under review. Average annual food expenditure was somewhat under \$1,500.

Here's what the survey showed—*Each dollar of debt repayment was associated with a 7-cent drop in food spending. In other words, 7 percent of debt repayment was being financed at the expense of food.* Had this money been used for groceries, it would have bought an estimated \$46 during 1968/69, the equivalent

of a 1½ week food supply for a family of four.

But there were wide variations from the mean. Depending on type and size of family and on after-tax income, the proportion of debt repayment financed at the expense of food was found to be much greater than 7 percent in some instances. There were also cases where the effect was negligible.

For example, food financed 25 percent of debt repayment in families consisting of husband and wife only. These repayments cut their food expenditures by \$166. This amount would have carried these households 7 weeks. Yet the level of debt repayment for these families, \$663 in 1968/69, was only slightly higher than the \$658 average for all 343 families.

Food spending was little affected by debt repayments in families with

one or two children under 6 years old. This was true even though they carried almost as much debt as the husband/wife family.

Why certain family types cut back on food buying while others didn't, is a moot question. This survey, in any case, was not designed to get into this aspect.

The amount of after-tax incomes was another variable. In families earning \$10,000 or more, food expenditures fell 13 cents for each dollar of debt repayment. These families also had a higher-than-average level of debt. Total reduction in their food budget averaged \$107, equal to a 3 weeks' food supply.

Unlike all other income groups in this survey, families with incomes under \$5,000 spent *more* for food as debt repayment increased. Food spending went up 9 cents for each dollar of repaid debt.

Researchers suspect that this may have something to do with the fact that many families experience considerable year-to-year variation in income. During the downswing, many whose normal income is above \$5,000 will have an income below this level. And when incomes fall temporarily, families usually try to maintain their normal scale of living. They may also have levels of consumer debt more in line with their normal, rather than current, income position. If so, within the under-\$5,000 class, high levels of debt repayment will be associated with high levels of food expenditures.

The survey team also reported that the families themselves often did not realize how the debt they assume might affect their current living expenses.

Families who had taken on new debt in the survey year were asked whether they believed they would have to trim their usual expenditures as a consequence. Only one in eight said "yes." Yet of the families making payments on earlier-assumed debts, nearly two-fifths said they had to make one or more "unplanned cuts" to meet the payments. Food

was the most frequently cited area where cuts were made.

In this sample, the proportion of variation in food spending that is explained by the level of credit used is very small. Credit and income together explain only 9 percent of the variation in the total sample and in the high income group the proportion explained fell to 2 percent. This should not be interpreted to mean that these are unimportant factors. Rather, it is an indication of the multiplicity of factors acting upon food spending.

Summing up their findings, the researchers noted the results are "suggestive and tentative." This was, after all, a small sample and not representative of the total U.S. population.

The proposed 1971/72 Survey of Consumer Expenditures will give a more complete picture. The data will be useful in determining the effect of consumer credit on not only food buying, but on a wide range of living expenses as well. (9)

Corn Sirup Running Strong In Sweetener Race

Sugar use has picked up as a result of the ban on cyclamates. About half the 2-percent gain in 1970's usage (102 pounds per person) reflects the withdrawal of cyclamate sweeteners from the market.

But while sugar producers may have benefitted from the cyclamate ban, new competitors are emerging. One new product is an extraction of citrus wastes. Another is aspartyl-phenylalanine methel ester—150–250 times sweeter than granulated sugar.

Both products are currently being tested. They may well reclaim the market formerly held by cyclamates, but this is not expected to happen in the next several years.

Meantime, a more pressing concern to sugar producers is the recent advances in the corn sweetener industry—notably the develop-

ment and marketing of a high fructose corn sirup. (Fructose is another type of sugar; it's also called levulose and fruit sugar.) High fructose corn sirup is made by converting part of the dextrose in the sirup to the much sweeter levulose.

The proportion of levulose in the sirup determines the degree of sweetness. A sirup containing roughly 15 percent levulose has been available for some years. But recently a much sweeter 42-percent levulose product has been marketed.

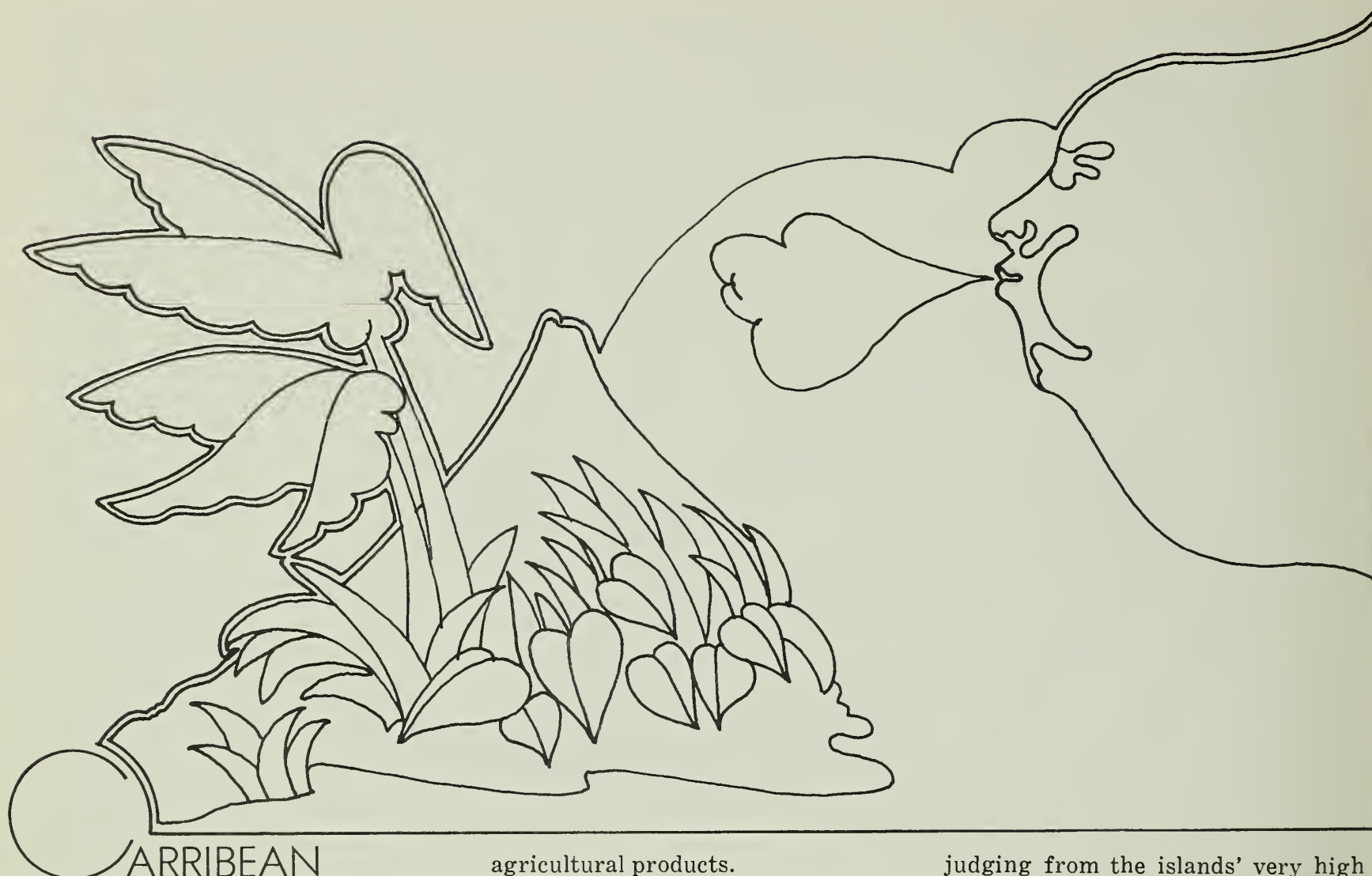
A high fructose sirup containing 42 percent levulose, 50 percent dextrose, and 8 percent higher saccharides is chemically quite similar to invert sugar containing half levulose and half dextrose.

Because of their greater sweetness, high fructose sirups compete more directly with sugar than did older types of corn sirup or cyclamates. For the same reason, these new sirups aren't particularly competitive with other corn sirups or dextrose. Thus, high fructose corn sirup is an added product for the corn wet milling industry, rather than a replacement for any of the industry's other products.

Comparative prices of sugar and high fructose sirups will probably determine to what extent the latter will be used as a substitute for regular sugar. Prices, of course, will depend on production costs for both products. Currently, little is known about the cost of producing high fructose sirups on a large commercial scale, particularly costs of converting dextrose to levulose.

Evidence shows, however, that certain industries tend to step up use of corn sirup as its price declines in relation to sugar prices. Between 1957 and 1966, a decline in the corn sirup-sugar price ratio resulted in corn sirup's taking a bigger share of total sweeteners used in the baking, dairy, and canning industries.

On a per capita basis, corn sirup consumption reached 20 pounds last year—about 50 percent above the levels in the 1950's. But sugar use has changed relatively little. (10)



CARRIBBEAN TRADE WINDS FAVORABLE TO U.S. AGRICULTURE

The Caribbean has emerged as a major expanding market for U.S. farm products. Demand for temperate zone foodstuffs has grown significantly, not only to round out the diets of island residents but to feed the mounting tide of North American visitors.

By the late 1960's, U.S. "exports" to the Caribbean crescent—including Puerto Rico and the U.S. Virgin Islands—totaled over \$2.5 billion. More than a fifth of the shipments were

agricultural products.

Agriculture is the predominant industry in the Caribbean, employing roughly 40 percent of the labor force. But agricultural production is largely confined to single crops—usually sugar or bananas for export. And land resources for domestic food crops and livestock are often limited. This—coupled with the rising tourist industry and pressures of a rapidly growing population—adds up to a need for more imports of food items.

In a number of countries, the surging tourist trade has emerged as the No. 1 industry. Tourism in the Bahamas, for example, has undergone phenomenal expansion. Well over 1 million visitors—almost 90 percent from the U.S.—flock to these islands each year. Currently, domestic crops supply only a fourth of the Bahamas' food needs. And the thin, rocky soils aren't suited for extensive agricultural production.

Already the major trading partner, the U.S. can expect farm exports to the Bahamas to increase,

judging from the islands' very high growth rate in population.

Tourism, both directly and indirectly, may be the largest single factor in the widening Caribbean market for our agricultural products. Beachside resort hotels are the ultimate destination for substantial shares of American farm exports.

The increased buying power of Caribbean residents plays a major role too. Over the 1960's per capita income rose substantially throughout the region, with the possible exceptions of Cuba, the Netherlands Antilles, and Haiti.

In many cases, higher incomes are an offshoot of the growth in tourism: the countries with the highest per capita incomes are generally those that lure the most tourists. Nevertheless, the Caribbean populace—as it achieves a higher standard of living—is upgrading the quality of diets with more imported food products.

Another factor in the expansion of Caribbean markets for farm commodities is that many territories

have geographic features that impose severe limitations on adequate agricultural production.

Curacao's semi-arid climate is not conducive to farming, and nearly all food must be imported. To reclaim Grand Cayman Island's vast swamp for agricultural use would probably prove too costly. And Haiti, one of the most densely populated countries in the Western Hemisphere, lacks suitable cropland, roads, and marketing facilities to develop its agriculture.

Efforts to diversify agricultural production have been moderately successful. On Montserrat, lands formerly devoted to sugarcane and bananas are being gradually shifted to carrots and tomatoes. Antigua reports a thriving commercial poultry industry.

For the most part, however, Caribbean lands still suffer from single-crop agriculture. The production of sugar for export has long dominated the region's farm output. Other crops grown primarily for export include coffee, bananas, cocoa, and citrus products.

Corn, rice, root crops, and tropical fruits make up the major crops for domestic consumption. To supplement these products, the Caribbean import list includes large supplies of meat and meat preparations, cereals, dairy products and eggs, fruits, veg-

etables, fats and oils, and animal feeds.

As most tropically-located Caribbean countries and territories produce similar farm products, intra-regional agricultural trade is limited, and typical temperate zone food products must be obtained from outside the area.

Trade in agricultural commodities is usually with parent countries, which often grant tariff preferences to their present or former colonies. For example, Martinique and Guadeloupe trade primarily with their mother country, France. Trade agreements allow these islands easy access to French markets and the European Economic Community.

Even so, American farm exports to Martinique and Guadeloupe expanded considerably in the second half of the 1960's, and the U.S. currently ranks second as their trading partner. The situation is the same in many Caribbean nations—Barbados, Guyana and St. Lucia, to name but a few.

Great Britain, long a major land holder in the Caribbean, grants Commonwealth tariff preferences to all its Caribbean affiliates. But the U.K.'s influence in this region is shrinking—to the advantage of the American farmer. Jamaica is a case in point.

This island, due south of Cuba, as-

sumed Dominion status within the British Commonwealth after gaining independence in 1962. The U.S. has since supplanted the United Kingdom as Jamaica's main supplier of both farm commodities and other products.

Although Bermuda and the Bahamas are U.K. colonies with Commonwealth tariff preferences, the United States has emerged as their major partner in trade. In 1968, about half of Bermuda's total imports were furnished by the U.S. Among the chief supplies—beef and poultry.

Why these countries are trading increasingly with the U.S. might simply be a matter of proximity. Add to this a growing familiarity with (and subsequent desire for) American goods—another byproduct of the booming tourist industry.

Over two-thirds of all our Caribbean-bound exports, however, end up in our own territories—Puerto Rico and the U.S. Virgin Islands. More than 20 percent of these exports are agricultural.

Since our country, Puerto Rico, and the U.S. Virgin Islands are in the same customs union, there is free flow of commodities from one to the other. Both of our Caribbean territories have thriving tourist industries, along with per capita incomes that rank among the highest in the Caribbean area. (14)

U.S. EXPORTS TO THE CARIBBEAN—WHERE THEY WENT

Country or territory	1965		1968		Country or territory	1965		1968	
	Total	Agricul- tural	Total	Agricul- tural		Total	Agricul- tural	Total	Agricul- tural
U.S. \$1,000									
Barbados	8,751	2,037	14,437	3,192	Netherlands Antilles	74,376	10,107	87,668	12,849
Cuba	5	0	1	0	Surinam	35,642	3,107	32,447	4,137
Dominican Republic	74,946	24,500	113,711	30,168	Leeward & Windward Is.	13,029	2,701	17,589	3,956
Guyana	19,672	3,670	22,620	3,555	Bahamas	106,107	14,000	162,947	26,868
Haiti	21,312	9,760	23,970	9,297	Bermuda	43,792	6,140	62,475	7,821
Jamaica	86,701	20,766	146,034	28,783	British Honduras	7,963	2,332	9,406	2,471
Trinidad & Tobago	74,462	9,514	61,498	13,560	Puerto Rico	1,275,058	309,318	1,691,562	367,453
French Guiana	1,171	123	2,825	232	U.S. Virgin Is.	74,086	14,446	152,383	31,245
French West Indies	11,387	1,858	13,277	2,290	Total	1,928,460	434,379	2,614,850	547,837

Sources: U.S. Bureau of the Census: FT 125, FT 155, FT 420, FT 455 and country runs.

Recent Publications

COSTS AND RETURNS: COMMERCIAL TOBACCO - LIVESTOCK FARMS, BLUE-GRASS AREA, KENTUCKY. Owen K. Shugars and John H. Bondurant, Farm Production Economics Division, and Daphene E. Tippet, University of Kentucky, cooperating with Ky. Agr. Expt. Sta. FCR 77.

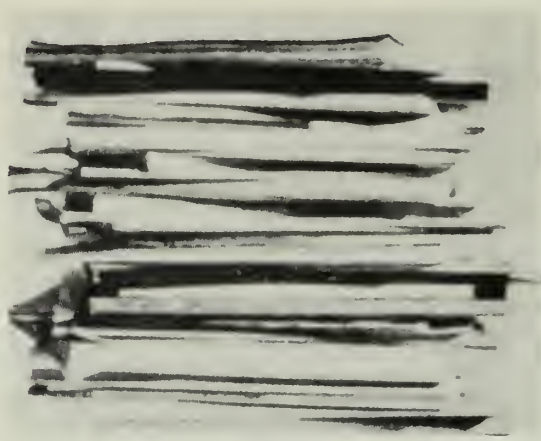
This is part of a continuing nationwide study of costs and returns on commercial farms and ranches in selected farming regions.

PRICE DIFFERENTIALS FOR COMPLETE FEEDS, SUPPLEMENTS AND SHELLED CORN: A REGRESSION ANALYSIS. Paul E. Nelson, Jr. Marketing Economics Division. AER 198.

Farm expenditures for feed rose from \$4.9 billion in 1960 to \$6.6 billion in 1969. During this period, feed expenditures represented more than 17 percent of total production costs.

ESTIMATED COSTS AND RETURNS FROM COMMERCIAL VEGETABLES, FRUITS, AND PECANS, COASTAL PLAIN, SOUTH CAROLINA. Charles P. Butler and D. E. Crawford, Farm Production Economics Division, in cooperation with South Carolina Agr. Expt. Sta., AE 334.*

Detailed itemized budgets of pro-



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duction costs for commercial vegetables, fruits, and pecans grown under improved methods in the Coastal Plain of South Carolina provide basic data needed for farm planning.

HOW GREECE DEVELOPED ITS AGRICULTURE: 1947-67. D. C. Myrick and Lawrence A. Witucki, Foreign Development and Trade Division. FAER 67.

Though paved with problems, the route traveled by Greece resulted in one of the highest postwar growth rates in farm production among the less developed nations. From 1947-67, agricultural output in Greece increased at the compound annual rate of 4.9 percent.

TREE NUTS BY STATES 1968-69: PRODUCTION USE VALUE. Statistical Reporting Service. FRNT 4-1.

The analysis presents estimates of production, farm disposition, price, value, and utilization for 1968 and 1969 crops of almonds, English and Persian walnuts, filberts, macadamia nuts, pecans, and tung nuts.

CONCEPTS INVOLVED IN DEFINING AND IDENTIFYING FARMS. Richard J. Foote, Texas Tech University, cooperating with Statistical Reporting Service. ERS 448.

The current and prospective structure of agriculture and proposed systems for classifying farms are discussed in the report. The study reviews the history, emerging problems, and theory for gathering data.

Article Sources

State publications indicated by (*) may be obtained only from the experiment station or university cited. Manuscripts and special material are usually available only on request to authors.

1. Kenneth R. Krause, FPED, and Leonard R. Kyle, Michigan State University. The Economic Potential for Large Midwest Corn Farms (manuscript).
2. Rex F. Daly, ESAD. "Agricultural Situation and Outlook for 1971" (speech at 1971 National Agricultural Outlook Conference, Wash., D.C., February 23).
3. *The Farm Cost Situation*, FCS 42.
5. Joseph P. Biniek, NRED (special material).
6. Austin S. Fox and Robert P. Jenkins, FPED. *Restricting the Use of 2,4,5-T: Costs to Domestic Users*, AER 199.
7. Gladys L. Baker, ESAD (special material).
8. Robert C. McElroy, EDD. *The Hired Farm Working Force of 1970—A Statistical Report* (manuscript).
9. Joan C. Courtless, Consumer and Food Economics Division, Agricultural Research Service. "The Effect of Consumer Credit on Food Expenditures" (speech at 1971 National Agricultural Outlook Conference, Wash., D.C., February 24).
10. Roy A. Ballinger, MED. "The Outlook for Nonsucrose Sweeteners" (speech at 1971 National Agricultural Outlook Conference, Wash., D.C., February 24).
14. Wilbur F. Buck, FRAD. *Agriculture and Trade of the Caribbean, Bermuda, the Bahamas, the Guianas and British Honduras* (manuscript).
15. Allen G. Smith, FPED. *Comparative Capitalization of Agriculture and Manufacturing Sectors of the Economy* (manuscript).

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Economic Trends

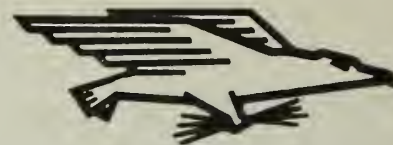
ITEM	UNIT OR BASE PERIOD	1967	YEAR	1970 Feb.	Dec.	1971 Jan.	Feb.
Prices:							
Prices received by farmers	1967 = 100	—	110	114	104	107	112
Crops	1967 = 100	—	101	98	100	103	105
Livestock and products	1967 = 100	—	118	126	108	110	117
Prices paid, interest, taxes and wage rates	1967 = 100	—	114	113	116	117	118
Family living items	1967 = 100	—	114	112	116	116	116
Production items	1967 = 100	—	109	109	111	112	113
Parity ratio		74	72	75	67	68	70
Wholesale prices, all commodities	1967 = 100	—	110.4	109.7	111.0	111.8	112.8
Industrial commodities	1967 = 100	—	110.0	108.7	111.7	112.2	112.5
Farm products	1967 = 100	—	111.0	114.0	107.1	108.9	113.9
Processed foods and feeds	1967 = 100	—	112.0	112.1	110.7	111.8	113.3
Consumer price index, all items	1967 = 100	—	116.3	113.9	119.1	119.2	119.4
Food	1967 = 100	—	114.9	114.1	115.3	115.5	115.9
Farm Food Market Basket: ¹							
Retail cost	Dollars	1,080	1,225	1,227	1,213	1,212	—
Farm value	Dollars	414	480	509	437	450	—
Farm-retail spread	Dollars	666	745	718	776	762	—
Farmers' share of retail cost	Percent	38	39	41	36	37	—
Farm Income: ²							
Volume of farm marketings	1967	100	103	81	117	114	82
Cash receipts from farm marketings	Million dollars	42,693	48,678	3,367	4,219	4,157	3,300
Crops	Million dollars	18,434	19,589	1,052	1,984	1,851	1,100
Livestock and products	Million dollars	24,259	29,089	2,315	2,235	2,306	2,200
Realized gross income ³	Billion dollars	48.8	56.2	—	55.8	—	—
Farm production expenses ³	Billion dollars	34.5	40.4	—	40.9	—	—
Realized net income ³	Billion dollars	14.3	15.8	—	14.9	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	—	7,174	—	739	672	—
Agricultural imports	Million dollars	—	5,667	—	509	507	—
Land Values:							
Average value per acre	1967 = 100	—	⁵ 115	⁵ 115	⁶ 118	⁶ 118	⁶ 118
Total value of farm real estate	Billion dollars	—	⁵ 207.3	⁵ 207.3	⁶ 210.7	⁶ 210.7	⁶ 210.7
Gross National Product: ³							
	Billion dollars	793.9	976.5	—	989.9	—	—
Consumption	Billion dollars	492.1	616.7	—	627.0	—	—
Investment	Billion dollars	116.6	135.7	—	137.1	—	—
Government expenditures	Billion dollars	180.1	220.5	—	223.2	—	—
Net exports	Billion dollars	5.2	3.6	—	2.6	—	—
Income and Spending: ⁴							
Personal income, annual rate	Billion dollars	629.3	801.0	781.5	817.5	826.7	828.9
Total retail sales, monthly rate	Million dollars	26,151	30,371	29,980	30,537	31,034	—
Retail sales of food group, monthly rate	Million dollars	5,759	6,785	6,655	6,989	6,876	—
Employment and Wages: ⁴							
Total civilian employment	Millions	74.4	78.6	78.8	78.5	78.9	78.5
Agricultural	Millions	3.8	3.5	3.5	3.4	3.4	3.3
Rate of unemployment	Percent	3.8	4.9	4.2	6.2	6.0	5.8
Workweek in manufacturing	Hours	40.6	39.8	39.9	39.6	39.8	39.4
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	3.36	3.29	3.47	3.50	3.51
Industrial Production: ⁴							
	1967 = 100	—	106	108	104	105	104
Manufacturers' Shipments and Inventories: ⁴							
Total shipments, monthly rate	Million dollars	45,712	55,554	55,613	55,820	56,922	—
Total inventories, book value end of month	Million dollars	82,825	99,708	96,652	99,708	99,260	—
Total new orders, monthly rate	Million dollars	45,928	55,009	54,714	56,431	57,858	—

¹ Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1959-61—estimated monthly. ² Annual and quarterly data are on 50-State basis. ³ Annual rates seasonally adjusted fourth quarter. ⁴ Seasonally adjusted. ⁵ As of November 1, 1969. ⁶ As of November 1, 1970.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

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